Linguistics with CLARIN TTNWW & PaQu

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Overview

- Enrich your own resources (TTNWW)
- Enrich your own resources (other applications)
- Search in your own enriched resources (AutoSearch)
- Search in your own enriched resources (PaQu)
- Conclusions

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TTNWW

- TTNWW
  - *TST tools voor het Nederlands als Webservices in een Workflow* (LST Tools for Dutch as web services in a work flow)
  - Goal: to make existing components for Dutch from previous projects (*inter alia* CGN and STEVIN) available as web services and combine them into work flows for use by HSS researchers with little or no technical background.

TTNWW

- Web service: software that can exchange information with other software over the internet
- (Web) application: software targeted at a specific user group with a dedicated (web) interface
- Work Flow: combinations of web services

TTNWW

- **Work Flow** describes the tasks, procedural steps, organizations or people involved, required input and output information, and tools needed for each step in a business process

TTNWW

- **Work Flow** describes the tasks, procedural steps, ~~organizations or people involved~~, required input and output information, and tools needed for each step in a business process
- (sometimes called *processing chain* in the context of software)

Existing Components

- **Text**
  - Orthographic Normalisation (TICCLops, UvT)
  - Part of Speech tagging (Frog, UvT/RUN)
  - Parsing (Alpino, RUG)
  - Named Entity Recognition (Frog, Ghent)
  - Semantic role labelling (MBSRL, UU)
  - Coreference Assignment (COREA, Antwerpen/Ghent)
- **Speech**
  - (Partial) transcription of speech (SPRAAK, KUL)

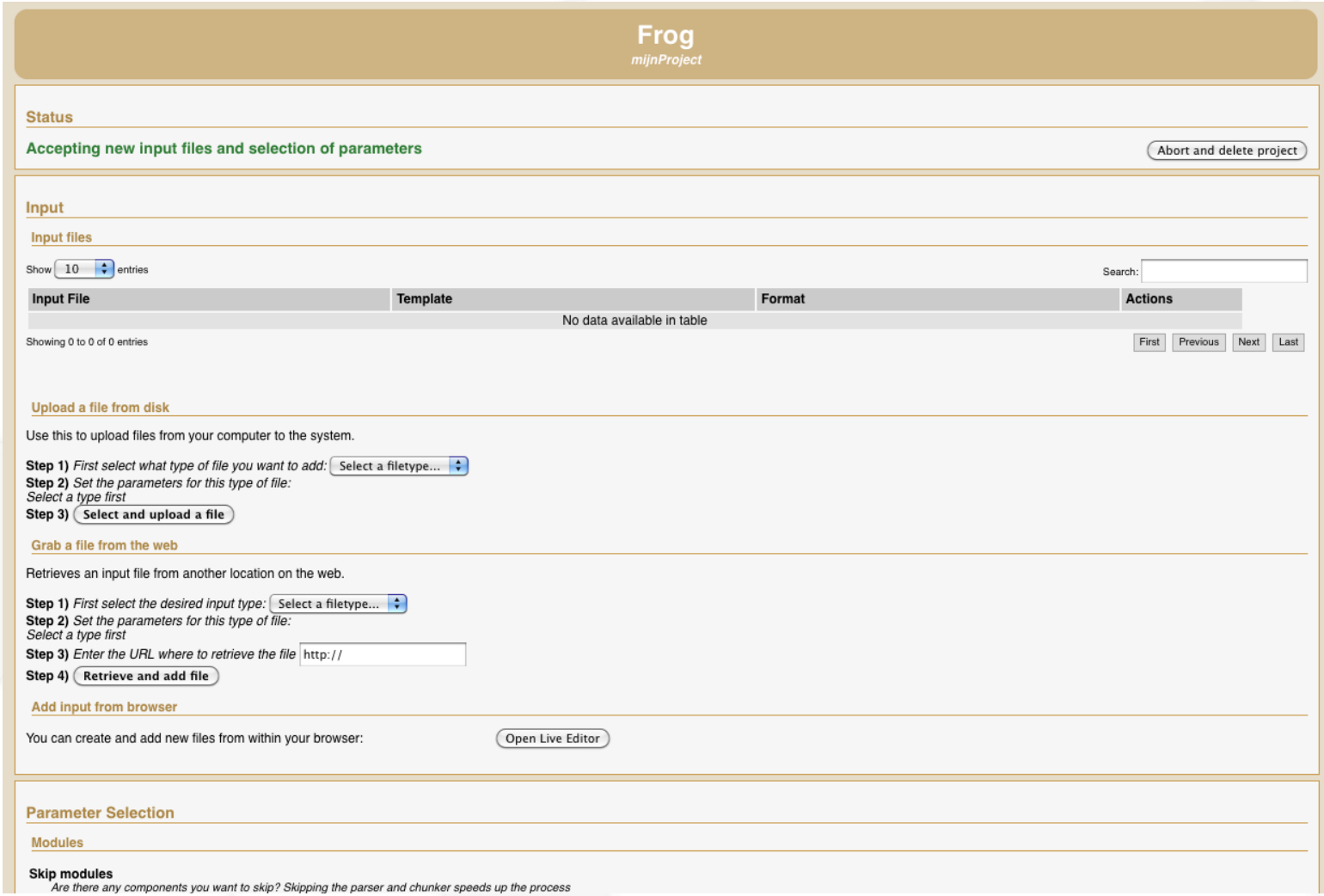
Existing Components

- For
  - Enrichment of text with corrections of OCR-input
  - Enrichment of text with linguistic annotations
  - Indexation of audio-visual files to make them searchable

Existing Components

- Before TTNWW
  - These required local installation (most under Linux only)
  - Required running by the developers
- After TTNWW
  - All available via the TTNWW web application
  - Most available individually as a web service / application

Frog Screenshot



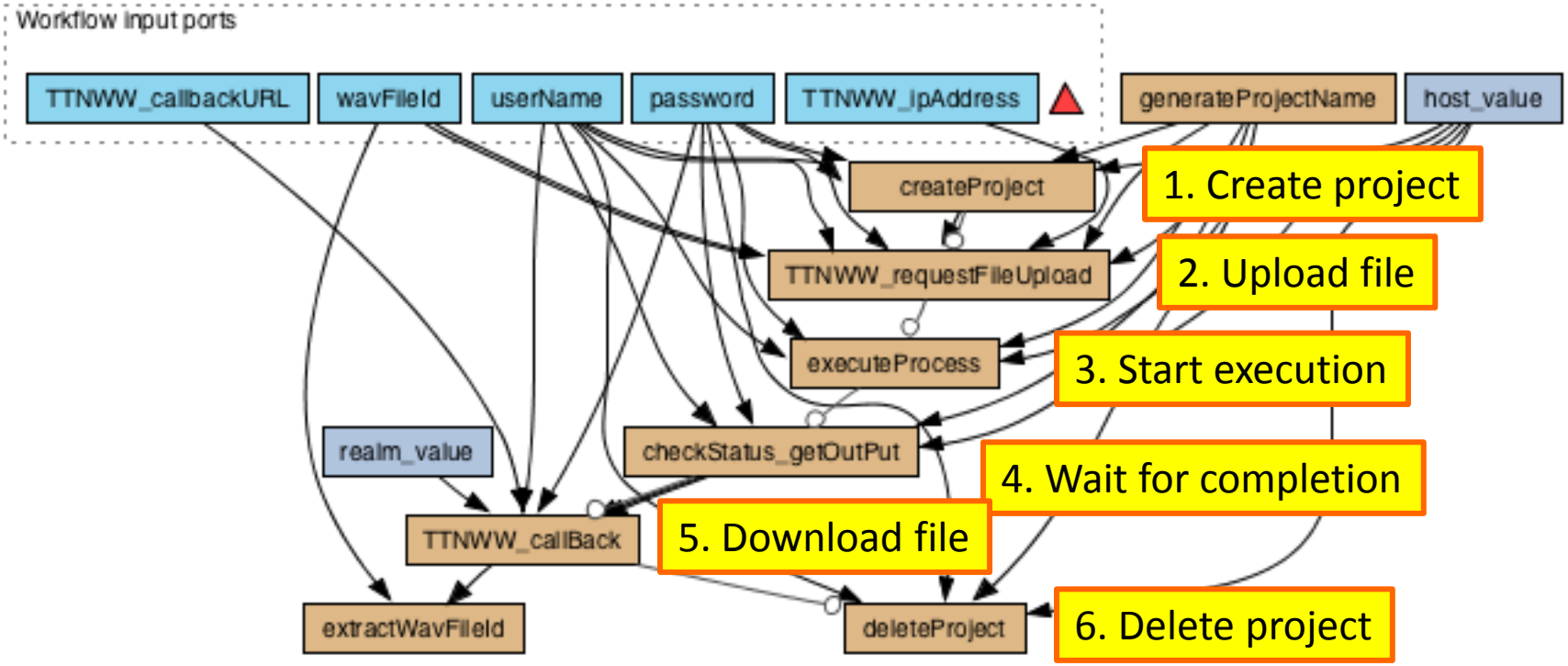
Existing Components

- Before TTNWW
  - Were command line tools
  - Working on a single system
  - No web services
- CLAM
  - Computational Linguistics Application Mediator
  - Generic wrapper to turn existing software easily into a web service
  - Most TTNWW components use CLAM

Existing Components

- **Work flows (simplified examples)**
  - Part of Speech tagging:
    - Tokenization -> sentence splitting -> Pos tagging
  - Parsing
    - Tokenization -> sentence splitting -> pos-tagging -> parsing
  - Named Entity Recognition
    - Pos-tagging -> NER
  - Semantic role labelling (MBSRL, UU)
    - Parsing -> semantic role labeling

Existing Components



Existing Components

- For TTNWW, the Taverna workbench is used
- Taverna enables creation of one's own work flows, but
- In TTNWW only fixed, predefined work flows are available
  - Making your own work flow is pretty complicated
  - The targeted audience – humanities researchers – seldom want to do this

TTNWW APPLICATION

TTNWW | TST Tools voor het Nederlands als Webservices in een Workflow

File Tools Help

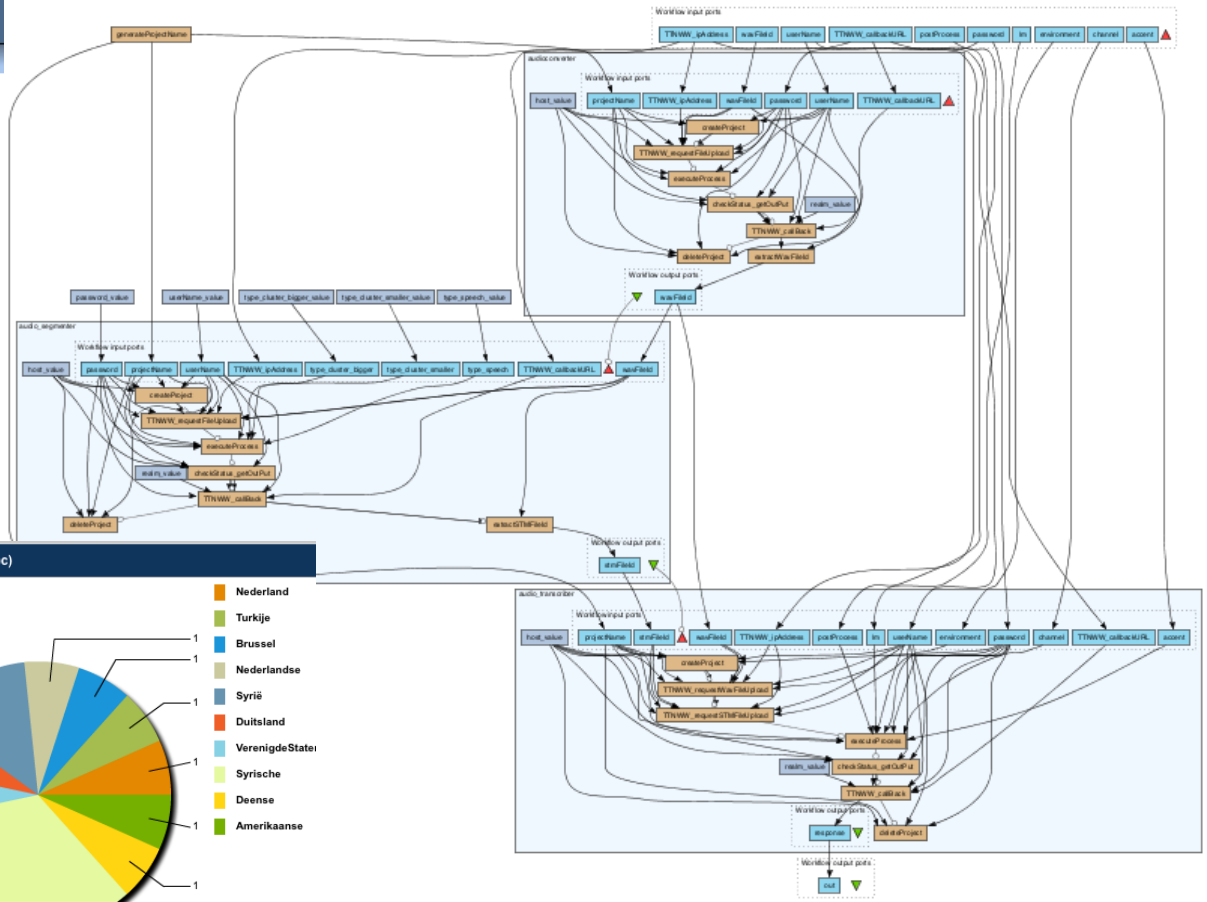
Text
Audio

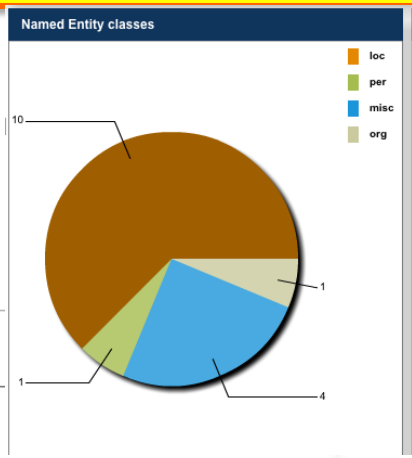
Spelling variation
Tagging
Parsing
Named Entity Recognition

Workspace Processes

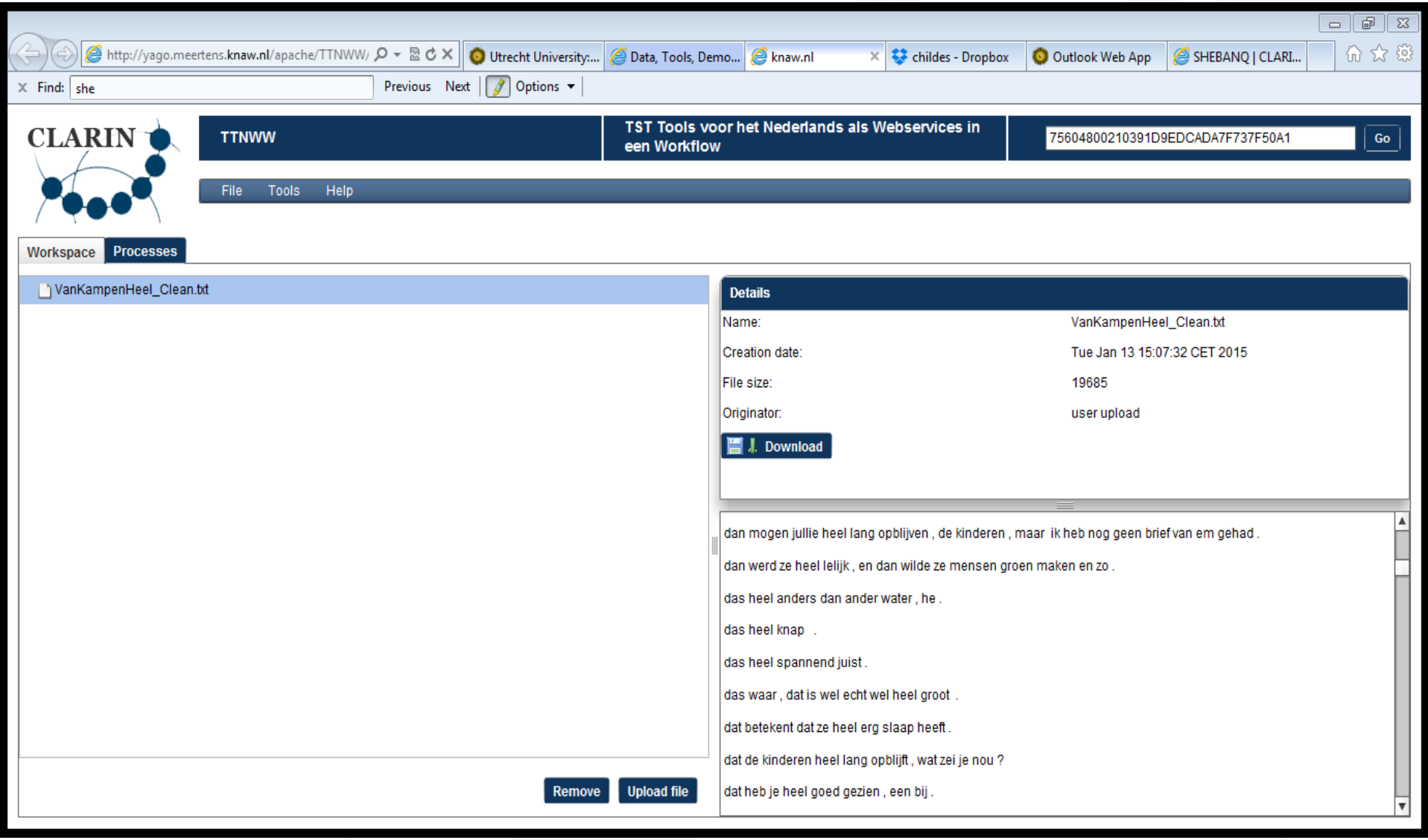
frogtest.txt
frogtest2.txt

Functionality
- *Data selection (upload/download)*
- *Selection of processes*
- *Calling processes*
- *Puts results in a **temporary** work space*
- *Only generic viewers*

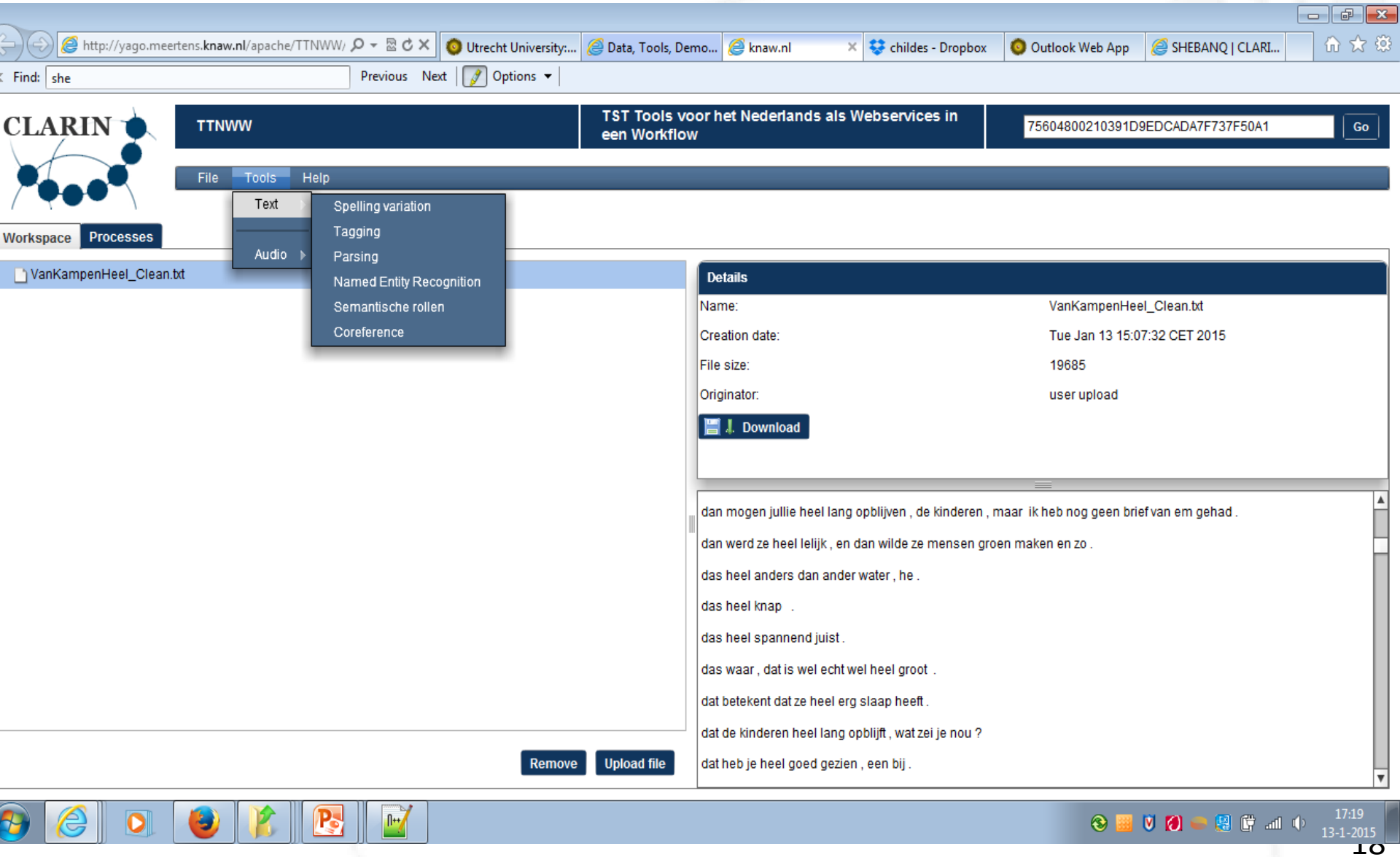




TTNWW Screen Shot



TTNWW Text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Data, Tools, Demo...
knaw.nl
childes - Dropbox
Outlook Web App
SHEBANQ | CLARI...
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Options
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TTNWW
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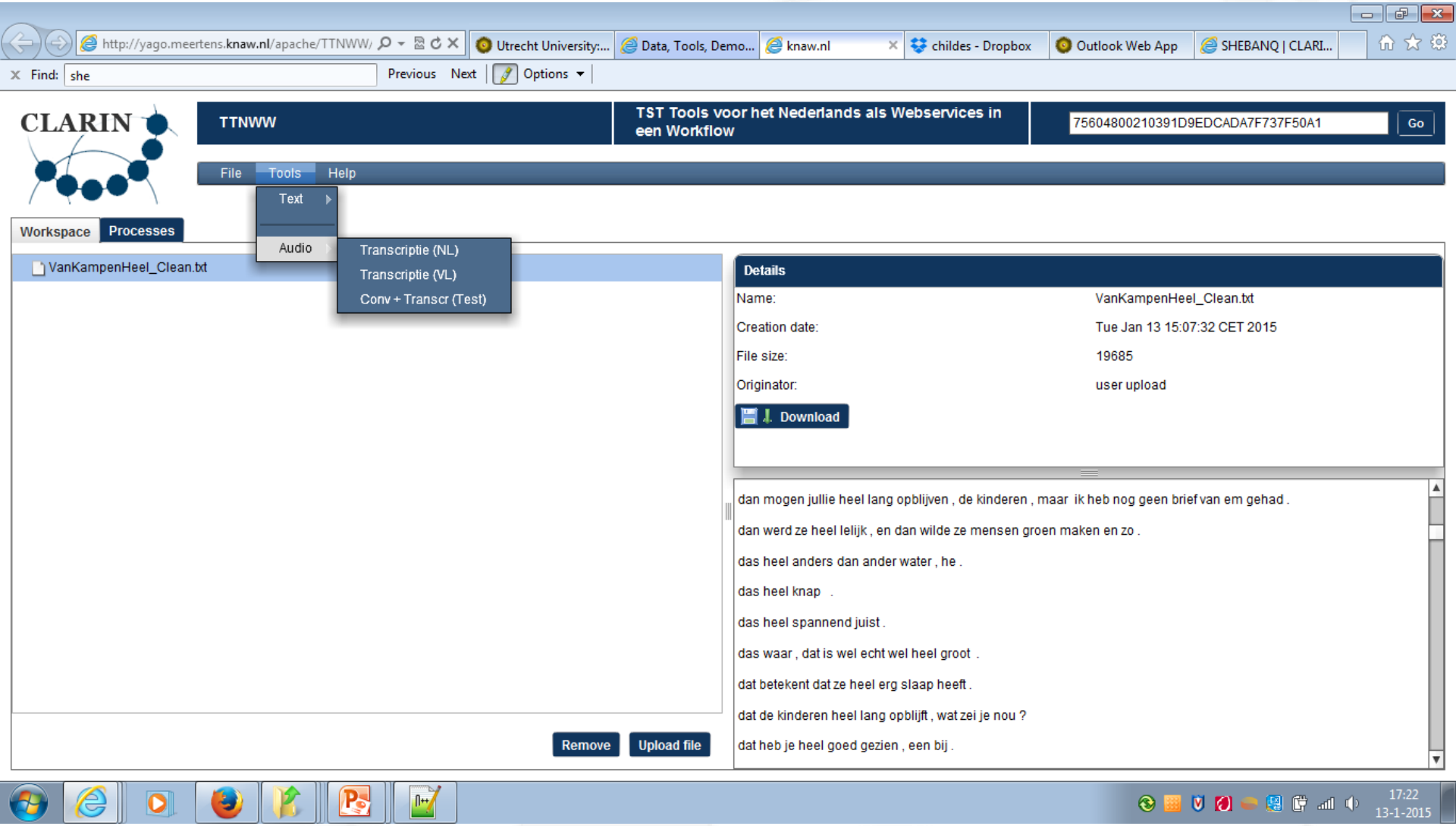
Go
File
Tools
Help
Text
Audio
Spelling variation
Tagging
Parsing
Named Entity Recognition
Semantische rollen
Coreference
Workspace
Processes
VanKampenHeel_Clean.txt
Details
Name:
VanKampenHeel_Clean.txt
Creation date:
Tue Jan 13 15:07:32 CET 2015
File size:
19685
Originator:
user upload
Download
dan mogen jullie heel lang opblijven , de kinderen , maar ik heb nog geen brief van em gehad .
dan werd ze heel lelijk , en dan wilde ze mensen groen maken en zo .
das heel anders dan ander water , he .
das heel knap .
das heel spannend juist .
das waar , dat is wel echt wel heel groot .
dat betekent dat ze heel erg slaap heeft .
dat de kinderen heel lang opblijft , wat zei je nou ?
dat heb je heel goed gezien , een bij .
Remove
Upload file
17:19
13-1-2015

TTNWW Audio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75604800210391D9EDCADA7F737F50A1
Go
File
Tools
Help
Text
Audio
Transcriptie (NL)
Transcriptie (VL)
Conv + Transcr (Test)
Workspace
Processes
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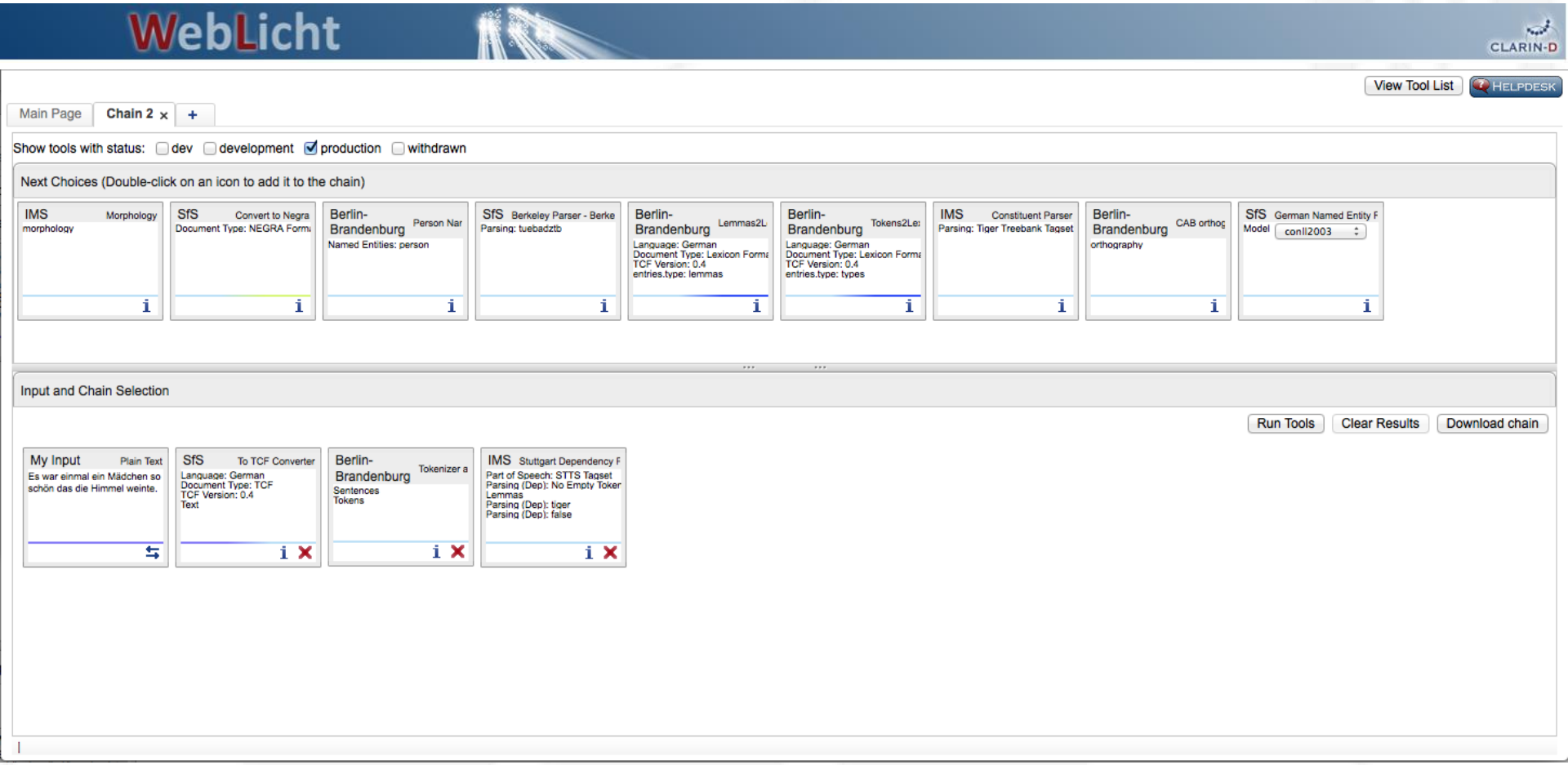
Other approaches in the '*CLARIN*' domain

- Weblicht (login with your university account)
  - *Easy Mode* lets you choose pre-defined processing chains
  - *Features Mode* allows you to select individual features, and then choose from a selection of processing chains.
  - *Advanced Mode* allows you to build customized tool chains.
- Multiple languages, mainly German

WEBLICHT D-SPIN PROJECT

https://weblicht.sfs.uni-tuebingen.de/WebLicht-4/

WebLicht D-Spin project



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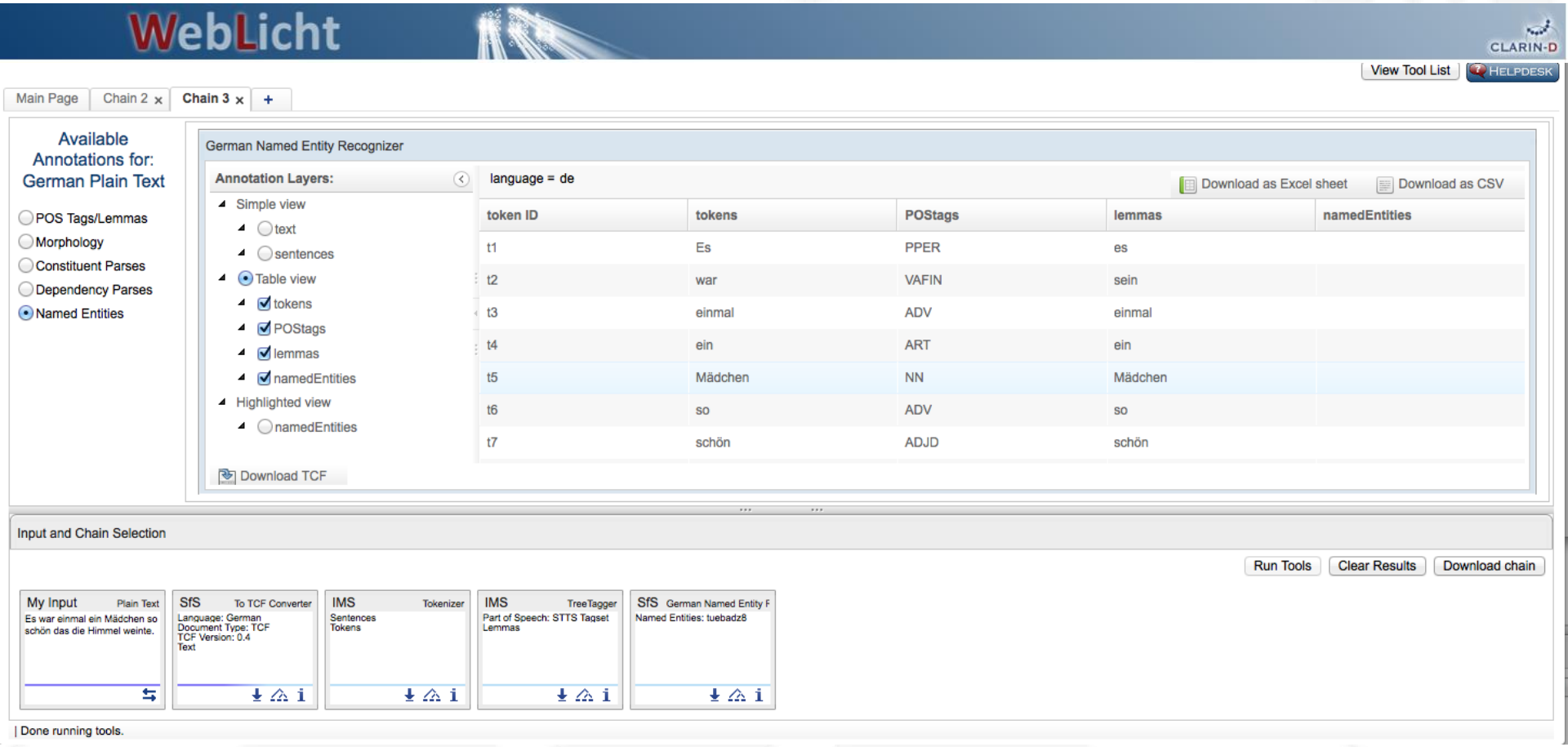
WebLicht D-Spin project



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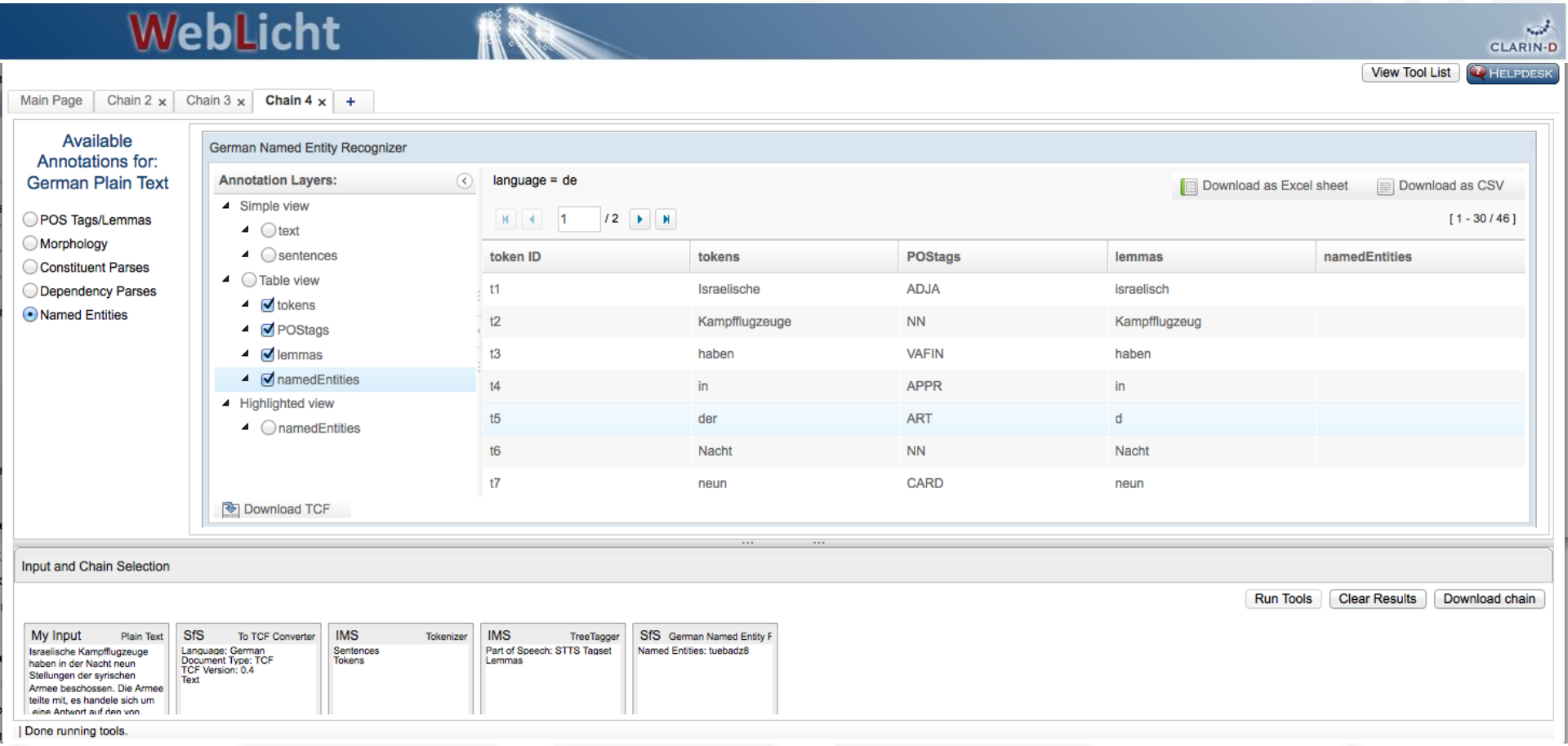
WebLicht D-Spin project



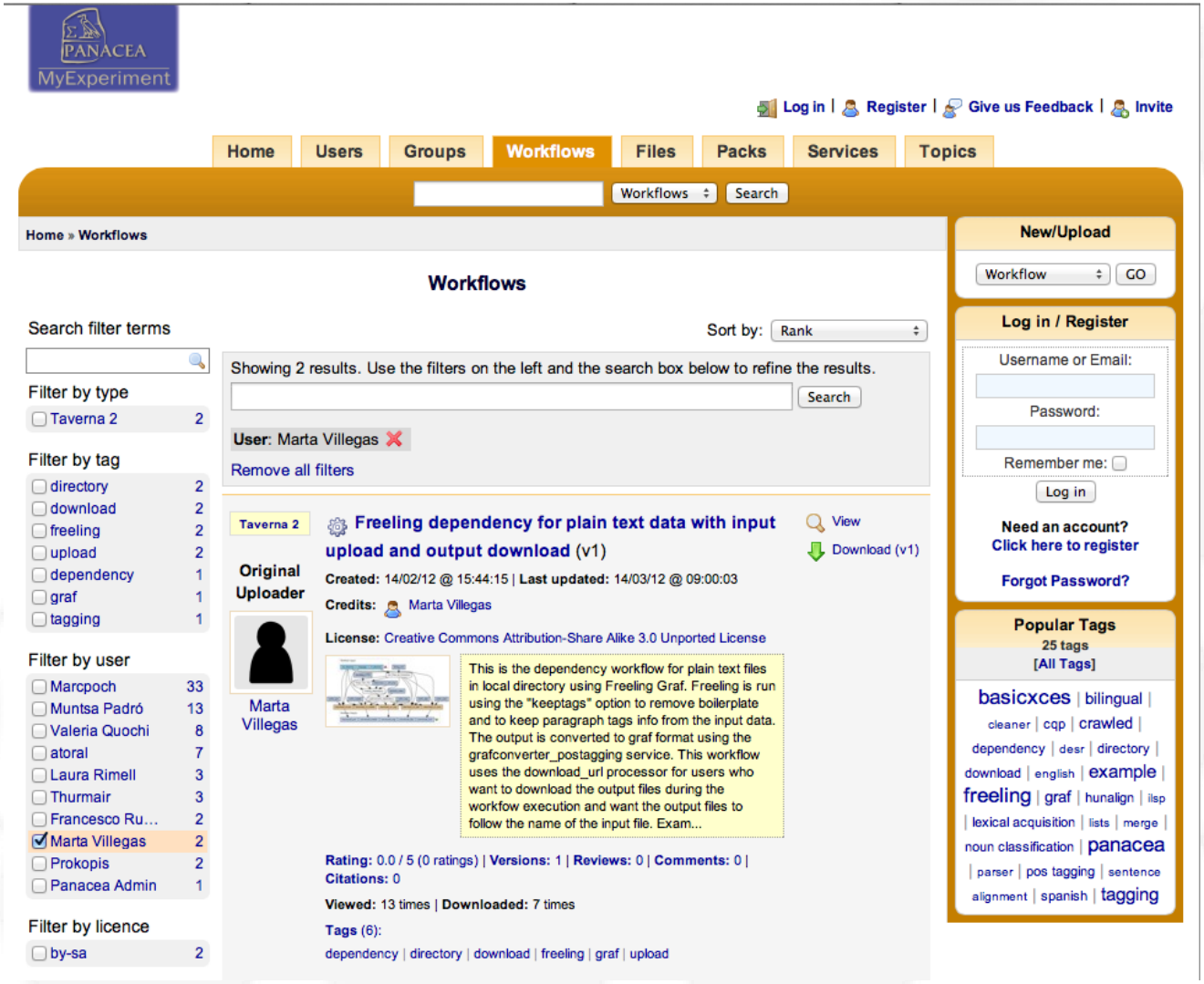
https://weblicht.sfs.uni-tuebingen.de/WebLicht-4/

Other approaches in the '*CLARIN*' domain

- Panacea
  - Taverna based workflow system
  - You can use find workflows
  - You can add your own work flows
  - You can use workflows
    - In the Taverna workbench (that you must download and install)
  - Multiple languages, incl Italian and Spanish
  - Uses Freeling (see its on-line demo)

PANACEA PROJECT

http://www.panacea-lr.eu



http://www.panacea-lr.eu

Other NLP services in the '*CLARIN*' domain

- Several services at LINDAT/CLARIN (Czech Republic), including Treex::Web (Czech, English)
- Several on-line services at CLARIN-DK, multiple languages
- Some services at CLARIN-PL (mainly for Polish)
- Language Analysis Portal by CLARINO (under development, mainly Norwegian)
- …

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- Search in your own enriched resources (PaQu)
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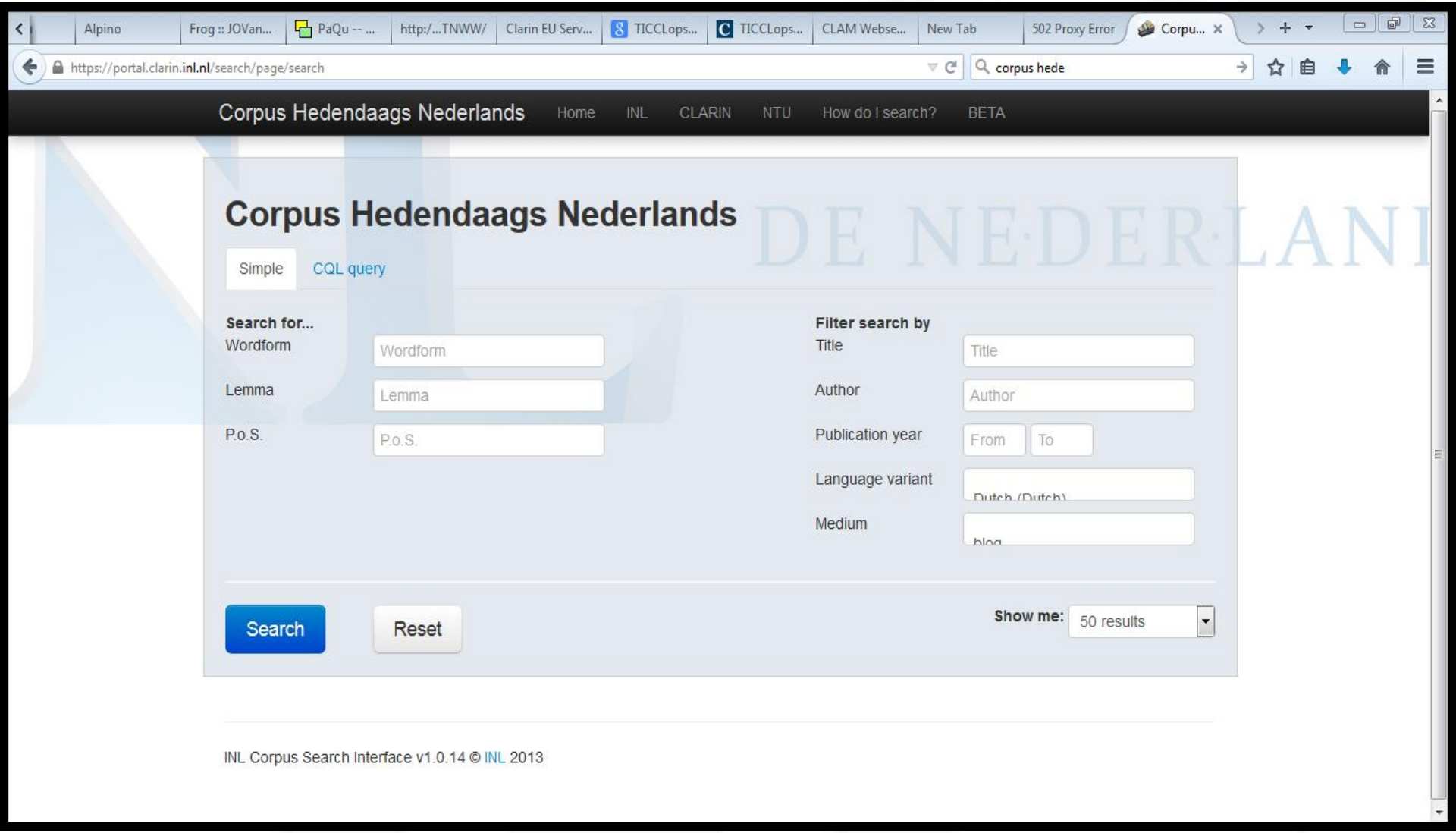
Search & Analysis

- Enriching your data is fine but
- What will you do with a (large and complex) set of XML files?
- You need options to search in the data and to analyze the data
- Two projects running in NL
  - AutoSearch (INL)
  - PaQu (Groningen University)

AutoSearch

- (under development, available March 2015)
- For pos-tagged data
- Supported formats:
  - FoLia (Frog yields Folia format)
  - TEI
- Search Interface: Corpus Hedendaags Nederlands (Corpus of Modern Dutch) interface

Corpus Hedendaags Nederlands



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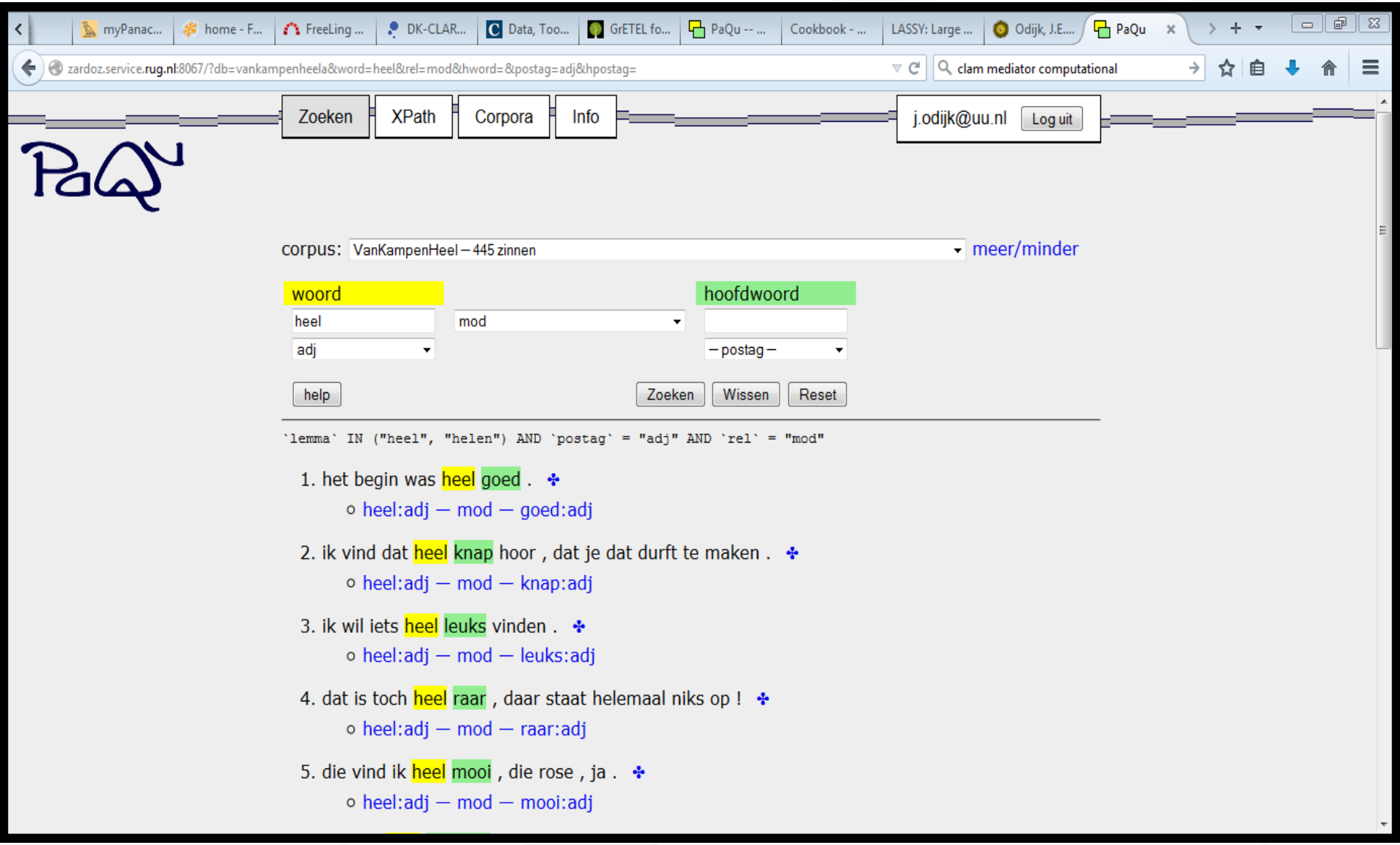
PaQu

- under development
  - available July 2015
  - Preliminary version available now!
- For fully parsed data
- Supported formats:
  - LASSY XML (yielded by TTNWW)
  - Plain text (and PaQu does the parsing)
- Search Interface: Groningen Word Relations Interface

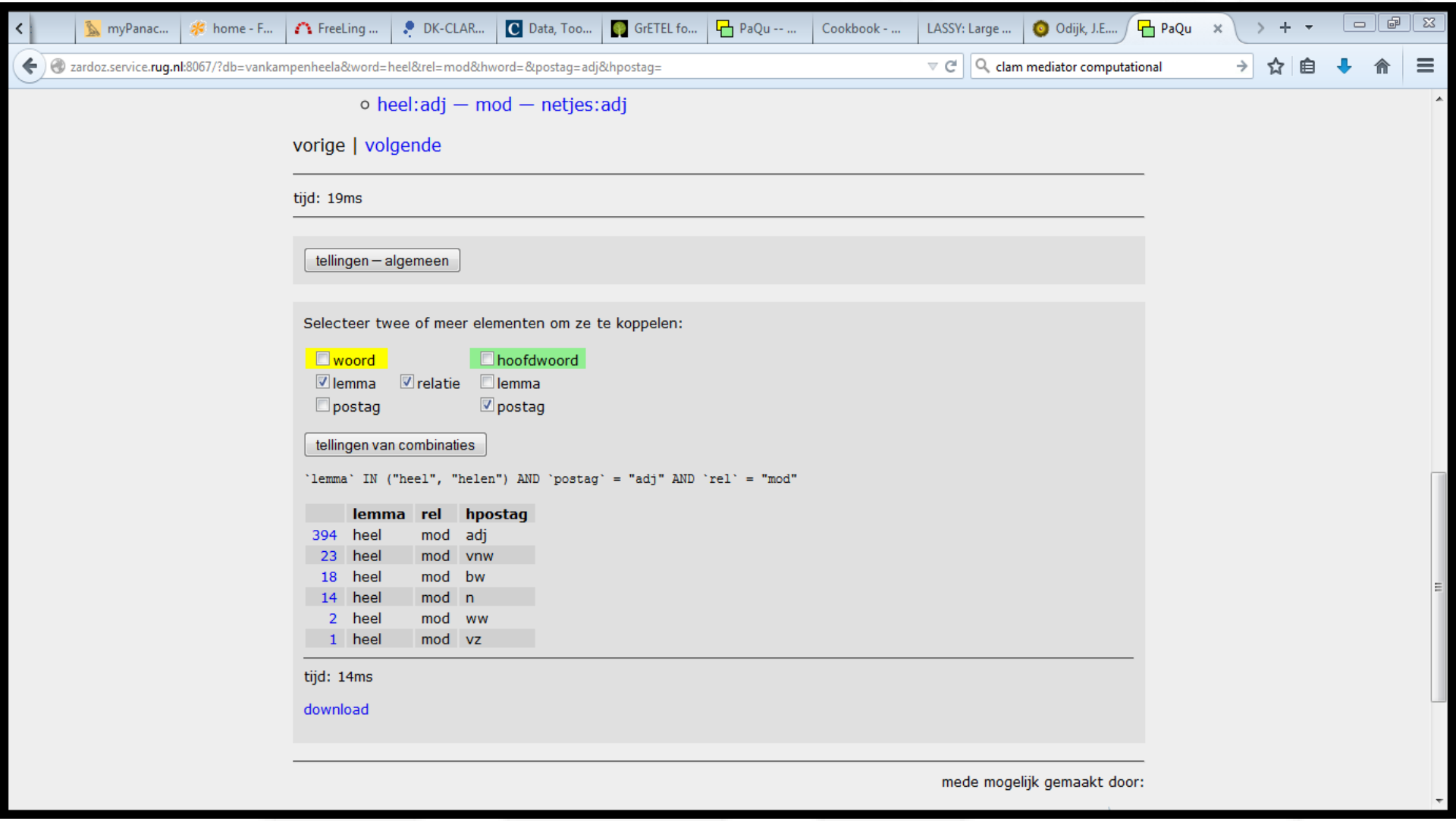
PaQu

- Small Experiment:
  - I selected the child-directed sentences containing *heel, erg, zeer* from the CHILDES Van Kampen corpus
  - Cleaned the text from annotations by a script
  - Loaded them to PaQu, and did an analysis.
  - Made a comparison with my manual annotation (see third lecture on the first day)- for the *mod* relation only.
  - Extended the manual annotation to cover multiple instances in one sentence (445 -> 452)
  - After comparison, I corrected the errors in my manual annotation (*revised manual annotation*)

PaQu


myPanac... home - F... FreeLing ... DK-CLAR... Data, Too... GrETEL fo... PaQu -- ... Cookbook - ... LASSY: Large ... Odijk, J.E.... PaQu
zardoz.service.rug.nl:8067/?db=vankampenheela&word=heel&rel=mod&hword=&postag=adj&hpostag=
clam mediator computational
Zoeken XPath Corpora Info
j.odijk@uu.nl Log uit
PaQu
corpus: VanKampenHeel – 445 zinnen
meer/minder
woord
heel
mod
adj
hoofdwoord
– postag –
help
Zoeken Wissen Reset
`lemma` IN ("heel", "helen") AND `postag` = "adj" AND `rel` = "mod"
1. het begin was heel goed .
heel:adj — mod — goed:adj
2. ik vind dat heel knap hoor , dat je dat durft te maken .
heel:adj — mod — knap:adj
3. ik wil iets heel leuks vinden .
heel:adj — mod — leuks:adj
4. dat is toch heel raar , daar staat helemaal niks op !
heel:adj — mod — raar:adj
5. die vind ik heel mooi , die rose , ja .
heel:adj — mod — mooi:adj

PaQu


zardoz.service.rug.nl:8067/?db=vankampenheela&word=heel&rel=mod&hword=&postag=adj&hpostag=
clam mediator computational
heel:adj — mod — netjes:adj
vorige | volgende
tijd: 19ms
tellingen – algemeen
Selecteer twee of meer elementen om ze te koppelen:
woord
lemma
relatie
postag
hoofdwoord
lemma
postag
tellingen van combinaties
`lemma` IN ("heel", "helen") AND `postag` = "adj" AND `rel` = "mod"
lemma rel hpostag
394 heel mod adj
23 heel mod vnw
18 heel mod bw
14 heel mod n
2 heel mod ww
1 heel mod vz
tijd: 14ms
download
mede mogelijk gemaakt door:

PaQu

- Comparison Alpino v. Manual v. Revised:

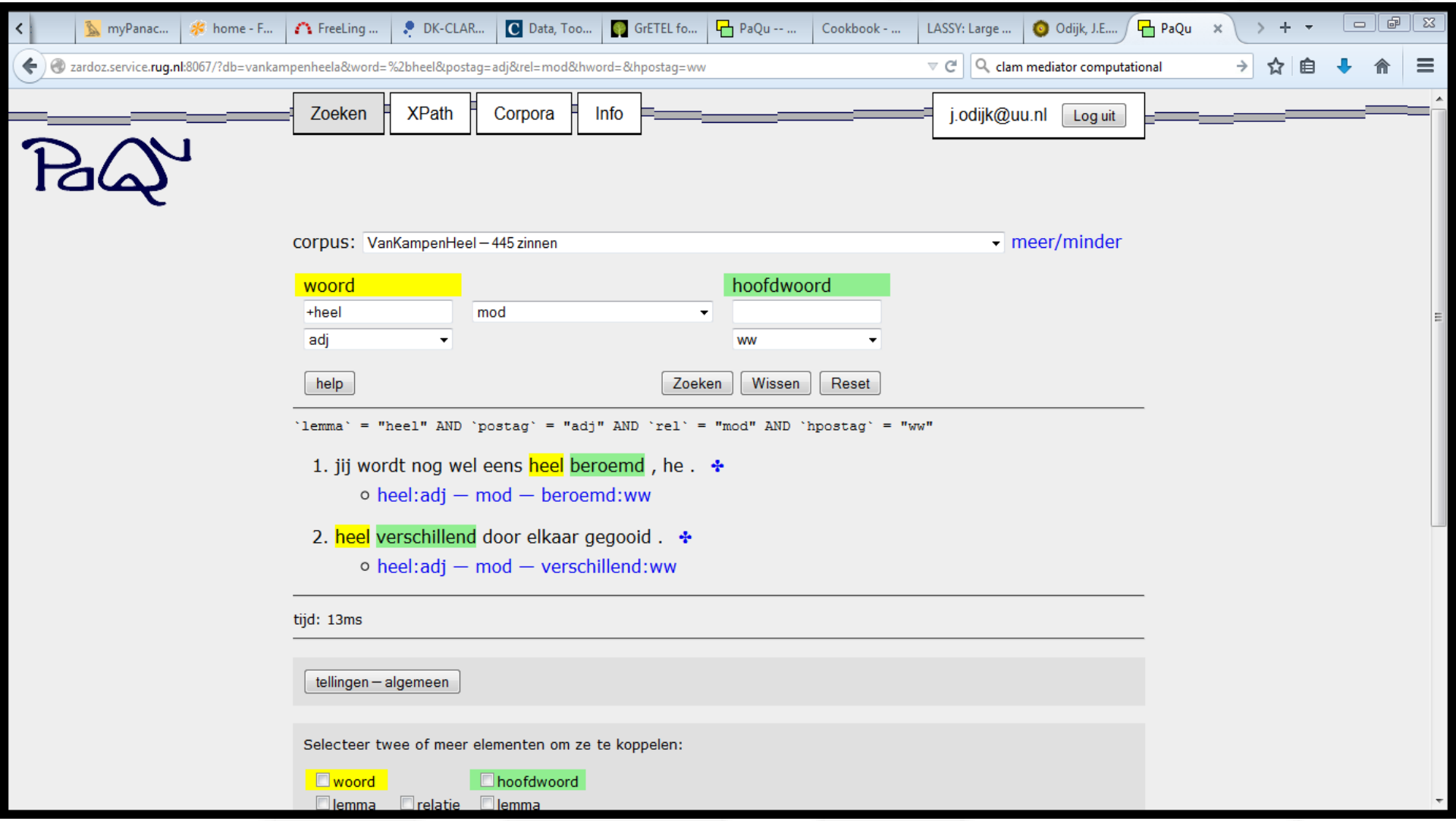
Case	Alpino	Manual	Revised
Mod adj	394	428	426
Mod vnw	23	--	--
Mod bw	18	--	--
Mod n	14	10	10
Mod ww	2	2	1
Mod vz	1	0	0
Predet n	0	1	2
predicative	0	7	8
unclear	0	4	5

PaQu

- Comparison Alpino v. Manual:

Count of examples	Column Labels						
Row Labels	**Amod**	**Nmod**	**NpreDet**	**pred**	**unclear**	**Vmod**	**Grand Total**
Amod	387	1		6	4		**398**
Bwmod	16					1	**17**
Nmod	6	6	1				**13**
Vmod	2						**2**
VNWmod	17	3		1			**21**
Vzmod						1	**1**
Grand Total	**428**	**10**	**1**	**7**	**4**	**2**	**452**

PaQu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corpus: VanKampenHeel – 445 zinnen
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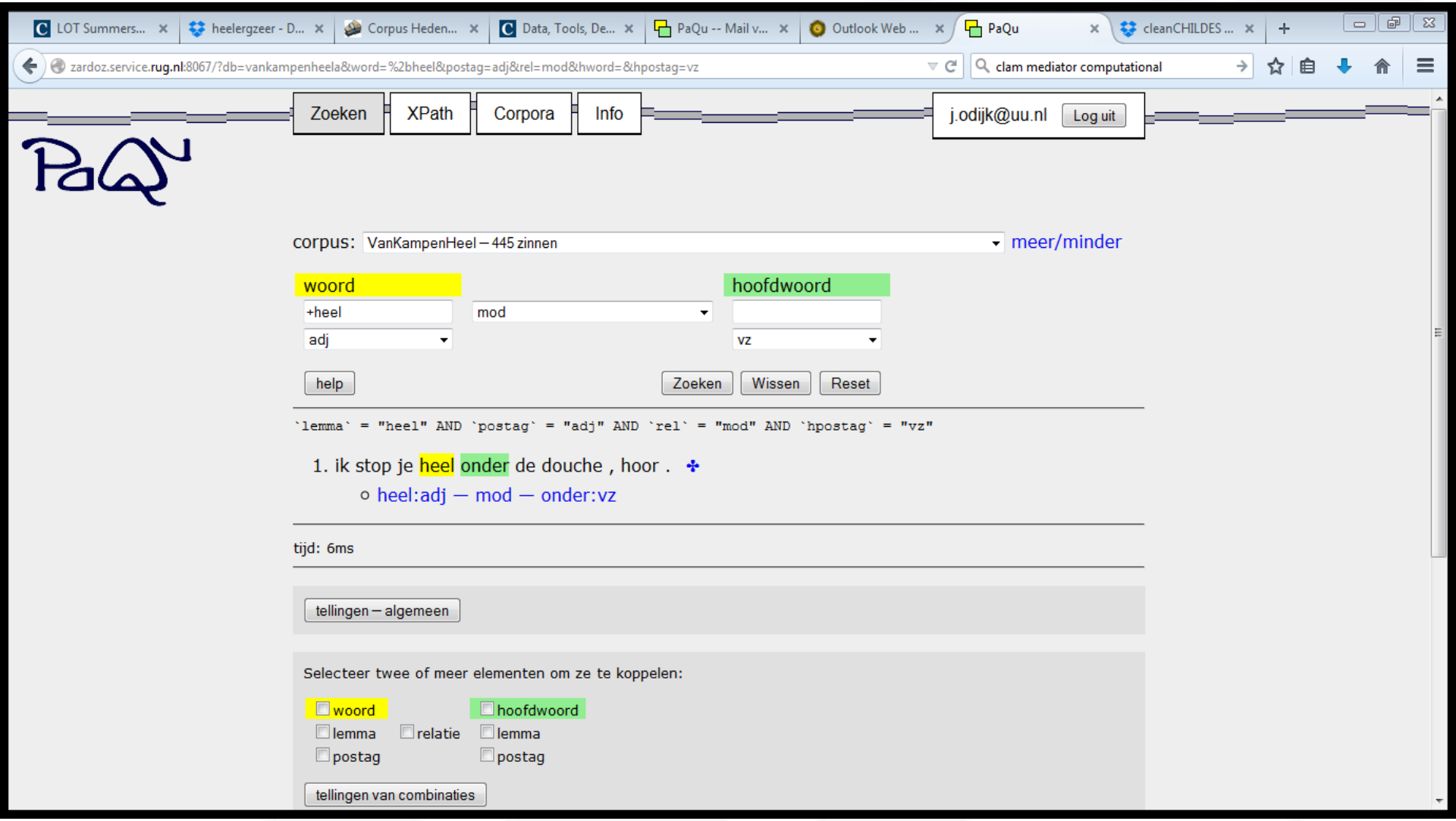
hoofdwoord
+heel
mod
adj
ww
help
Zoeken Wissen Reset
`lemma` = "heel" AND `postag` = "adj" AND `rel` = "mod" AND `hpostag` = "ww"
1. jij wordt nog wel eens heel beroemd , he .
heel:adj — mod — beroemd:ww
2. heel verschillend door elkaar gegooid .
heel:adj — mod — verschillend:ww
tijd: 13ms
tellingen – algemeen
Selecteer twee of meer elementen om ze te koppelen:
woord
hoofdwoord
lemma
relatie
lemma

PaQu


LOT Summers...
heelergzeer - D...
Corpus Heden...
Data, Tools, De...
PaQu -- Mail v...
Outlook Web ...
PaQu
cleanCHILDES ...
zardoz.service.rug.nl:8067/?db=vankampenheela&word=%2bheel&postag=adj&rel=mod&hword=&hpostag=vz
clam mediator computational
Zoeken
XPath
Corpora
Info
j.odijk@uu.nl
Log uit
PaQu
corpus: VanKampenHeel – 445 zinnen
meer/minder
woord
hoofdwoord
+heel
mod
adj
vz
help
Zoeken
Wissen
Reset
`lemma` = "heel" AND `postag` = "adj" AND `rel` = "mod" AND `hpostag` = "vz"
1. ik stop je heel onder de douche , hoor .
heel:adj — mod — onder:vz
tijd: 6ms
tellingen – algemeen
Selecteer twee of meer elementen om ze te koppelen:
woord
lemma
postag
relatie
hoofdwoord
lemma
postag
tellingen van combinaties

PaQu

- Accuracy Alpino:
  - TolAlpino = VNWmod and BWmod counted as Amod

Alpino v Manual	0,87
Alpino v Revised	0,88
TolAlpino v manual	0,94
TolAlpino v revised	0,96

PaQu

- Initial Experiment is promising
  - Automatic parsing gives reasonable results for a small experiment involving CHILDES data
    - But it concerns adult speech
    - It mostly concerns a very local grammatical relation
- Many extensions are still needed
  - CHILDES CHAT format (and many other formats) should be natively supported, including cleaning
  - Search and analysis of data and all metadata should be supported

Other systems

- I am not aware of any, except perhaps:
  - TüNDRA - the *Tübingen aNnotated Data Retrieval Application*

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- TTNWW enables linguists to enrich their own data (for Dutch)
- There is an increasing number of such applications for other languages, in large part thanks to CLARIN
- Applications to upload such data into search engines are under development
- Initial results of a small experiment are promising

Thanks for your Attention!